

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**  
**Before the Board of Patent Appeals and Interferences**

Inventor: Samuel Cavallaro et al.  
Application No.: 09/991,200  
Filed: November 16, 2001  
Title: Fully Integrated Critical Care Workstation  
Examiner: Lilian Vo  
Art Unit: 2127

**APPEAL BRIEF**

May It Please The Honorable Board:

Appellants appeal the Rejection, dated March 5, 2007 of Claims 1-8 of the above-identified application. The fee of five hundred dollars (\$500.00) for filing this Brief is to be charged to the credit card indicated with filing. Enclosed is a single copy of this Brief.

The fee for a one month extension of time ending October 5, 2007 is being paid concurrently herewith. No additional fee is believed due with this response. However, please charge any additional fee or credit any overpayment to Deposit Account 50-2828

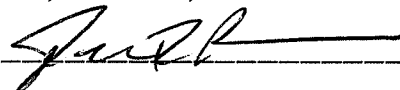
Appellants do not request an oral hearing.

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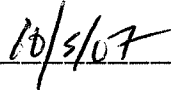
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Date:



**I. REAL PARTY IN INTEREST**

The real party in interest of Application Serial No. 09/991,200 is the Assignee of record:

Draeger Medical Systems, Inc.  
16 Electronics Avenue  
Danvers, Massachusetts, 01923

**II. RELATED APPEALS AND INTERFERENCES**

There are currently, and have been, no related Appeals or Interferences regarding Application Serial No. 09/991,200.

**III. STATUS OF THE CLAIMS**

Claims 1-8 are rejected and the rejection of claims 1-8 are appealed.

**IV. STATUS OF AMENDMENTS**

All amendments were entered and are reflected in the claims included in Appendix I. No amendments were made to the claims after the Final Rejection.

**V. SUMMARY OF CLAIMED SUBJECT MATTER**

Independent claim 1 provides a critical care workstation (Fig. 2 and 3). The workstation includes a display device, a processor coupled to the display device and circuitry responsive to user input (Fig. 3, 10, 20, 30) for selecting the non-real-time display program from among a plurality of available non-real-time display programs (pg 6, lines 19-24). The processor executes a general purpose operating system, controlling execution of a selected one of a plurality of non-real-time application programs for displaying images representing non-real-time data on the display device (pg. 7, lines 25 – 28); and a real-time kernel, controlling execution of a process for displaying images representing real-time data

on the display device concurrently with the display of the non-real-time data (Fig. 3; pg. 7, lines 3 – 15). The general purpose operating system and the real-time kernel are both arranged to execute as processes on the processor using a common operating system kernel (pg. 7, lines 25 – 28).

Dependent claim 2 includes the features of independent claim 1 along with the additional feature of the general purpose operating system executes concurrent with and independent from the real-time kernel (pg. 8, lines 29-30 and pg. 9, lines 11 – 13; Fig. 4, 206 and 212).

Dependent claim 7 includes the features of independent claim 1 along with the additional feature that the real-time data is physiological data (pg. 7, lines 3 – 5; Fig. 2, 320).

## **VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL**

Claims 1-6 and 8 are rejected under 35 U.S.C. 102(e) as being anticipated by Choi (US 6,275,741).

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Choi (US 6,275,741) in view of Nafis (WO/9424631).

## **VII. ARGUMENT**

Choi, when taken alone or in combination with Nafis, neither anticipates nor makes the present claimed invention unpatentable. Thus, reversal of the Final Rejection (hereinafter termed "rejection") of claims 1-8 under section 35 U.S.C. §§ 102(e) and 103(a) is respectfully requested.

### **Rejection of Claims 1-8 under 35 USC 102(e)** **over Choi (U.S. Patent No. 6,275,741)**

Reversal of the rejection of claims 1 – 6 and 8 under 35 U.S.C. 102(e) as being anticipated by U.S. Patent 6,275,741 issued to Choi is respectfully requested because the rejection makes crucial errors in interpreting the cited reference. The rejection erroneously states that claims 1- 6 and 8 are anticipated by Choi.

### **Overview of the Cited References**

Choi describes an apparatus and method for controlling an injection molding system having a plurality of devices which generate a corresponding plurality of feedback signals includes structure and steps for providing an operator control station which has a display and at least one operator input device. A single, general-purpose computer is coupled to both the operator control panel and the plurality of injection molding devices and functions to perform multiple-tasking control of both the injection molding functions and the operator control functions. The computer preferably performs real-time closed loop control of the plurality of injection molding devices while also processing system feedback signals and operator input signals. Thus, there is no need for the analog signal processor and the programmable logic controller of the prior art. Preferably, the single general purpose computer has local area

network and internet connections to allow external control and feedback of the operating parameters of the injection molding system (see Abstract).

Nafis describes an interactive surgery planning and display system that mixes the live video of external surfaces of the patient with interactive computer generated models of internal anatomy obtained from medical diagnostic imaging data of the patient. The computer images and the live video are coordinated and displayed to a surgeon in real time during surgery allowing the surgeon to view the internal and external structures and the relating between them simultaneously, and adjust his surgery accordingly (see Abstract).

#### CLAIMS 1, 3 – 6 and 8

The present claimed invention as disclosed in claim 1 provides a critical care workstation. The workstation includes a display device and a processor coupled to the display device. The processor executes a general purpose operating system, controlling execution of a selected one of a plurality of non-real-time application programs for displaying images representing non-real-time data on the display device. The processor also executes a real-time kernel controlling execution of a process for displaying images representing real-time data on the display device concurrently with the display of the non-real-time data. The general purpose operating system and the real-time kernel are both arranged to execute as processes on the processor using a common operating system kernel. The circuitry is responsive to user input for selecting the non-real-time display program from among a plurality of available non-real time display programs. For the reasons presented below, Choi fails to disclose each feature claimed in claim 1 and therefore does not anticipate the present claimed system.

Specifically, Choi fails to show or suggest “a general purpose operating system” that controls the selection of “non-real-time application programs” for displaying images therefrom and a separate “real-time kernel, controlling execution of a process for displaying images representing real-time data on the display device concurrently with the display of the non-real-time data” wherein “the general purpose operating system and the real-time kernel are **both arranged to execute as processes on the processor using a common operating system kernel**” as recited in the present claimed system. Choi is fundamentally different from the present claimed invention because the Choi system merely incorporates a real-time kernel as an extension of, and entirely incorporated into the general purpose operating system. Specifically, Choi provides that “the real-time kernel extension...is completely **integrated into the general purpose operating system**” (see column 7, lines 11 – 18). Integrating the real-time kernel into a general purpose operating system as in Choi is NOT equivalent to having a “real time kernel” and a “general purpose operating system” arranged to execute as processes “**using a common operating system kernel**” as in the present claimed arrangement. Rather, the common operating system kernel of the claimed invention “provides services to programs executing on the processor 10” which includes “information relating to available memory, virtual memory, input/output (I/O) etc” (see Application, page 8, line 25 – 30). Unlike the present claimed invention, Choi merely provides a real-time kernel that is combined with, and is an extension of, the general purpose operating system. There is nothing in Choi that provides any 35 USC 112 compliant enabling disclosure of the “real time kernel” and the “general purpose operating system” that “are **both** arranged to execute as processes on the processor using a common operating system kernel” and therefore involve a “real time kernel” and the “general purpose operating system” that execute as **separate, distinct** processes using “a common operating system kernel” as in the present claimed invention. The claimed

invention provides a different level of architecture that is not contemplated by Choi and therefore not anticipated by Choi.

Additionally, Choi provides a system that is fundamentally different from the present claimed system as it relates to the real-time control of injection molding machines in a plant. Unlike the Choi, the present claimed system provides “a critical care workstation” for use in a healthcare environment that enables simultaneous display of “real-time data” , for example, patient ECG data and “non-real-time data” obtained from, for example, an image display application wherein the simultaneous display is provided by execution of “processes on the processor using a common operating system kernel”. Choi neither discloses nor suggests these features. The claimed arrangement provides a workstation able to condition a display device to display non-real-time and real-time data simultaneously. Unlike the claimed arrangement, the real-time kernel described in Choi “provides real-time performance for machine control, HMI functions, and network functions” which operates like “a multi-tasking scheduler for all computer functions” (see column 6, lines 5 – 11). Nowhere does Choi disclose or suggest that simultaneous display of data as in the present claimed invention. Rather, Choi specifies a real-time control system for controlling and prioritizing the operation of injection molding devices (column 6, lines 30 – 36). While Choi includes a computer system able to display data on a display device, Choi fails to contemplate selecting and displaying “real-time” and “non-real-time” simultaneously using a “common operating system kernel” for executing the “real-time kernel” and the “general purpose operating system” as in the claimed arrangement.

Moreover, Applicant respectfully disagrees with the assertion in the Rejection alleging that Choi anticipates “a real-time kernel, controlling execution of a process for displaying

images representing real-time data on the display device concurrently with the display of the non-real-time data” as recited in claim 1. In support of this assertion, the Rejection cites col. 2, line 55 – col. 3, line 5; col. 5, lines 61-64 and col. 6, lines 5 – 30). However, while Choi describes a real-time kernel, the operation and purpose of the real-time kernel is fundamentally different from the present claimed system. Unlike the Choi, the present claimed invention obtains data from a real-time data source and displays the real-time data together with the selected non-real-time data. Choi merely provides for real-time control of an injection molding system that alleviates the need to physically control each injection molding machine by centralizing the control using a real-time kernel control system that is integrated within a general purpose operating system. Choi is concerned with simultaneous control of machines and machine processes and NOT “displaying images representing real-time data on the display device **concurrently with the display of the non-real-time data**” as in the present claimed invention.

Therefore, as Choi fails to provide any 35 USC 112 compliant enabling disclosure of each feature of the present claimed invention, Applicant respectfully submits that Choi does not anticipate the present claimed invention. Consequently, withdrawal of the rejection of claim 1 is respectfully requested.

Claims 3 – 6 and 8 are dependent on claim 1 and are considered patentable for the reasons presented above with respect to claim 1 in combination with the features claimed therein. Therefore, Applicant respectfully submits that Choi also does not anticipate the present invention as claimed in claims 3- 6 and 8. Consequently, withdrawal of the rejection of claims 3 – 6 and 8 is respectfully requested.



CLAIM 2

Claim 2 is dependent on claim 1 and is considered patentable for the reasons presented above with respect to claim 1. Claim 2 is also considered patentable because Choi neither discloses nor suggests that “the general purpose operating system executes concurrent with and independent from the real-time kernel” as recited in the claimed invention. Specifically, as described above with respect to claim 1, there is no 35 USC 112 compliant enabling disclosure in Choi of concurrent and independent operation of the real-time kernel and the general purpose operating system that are “both arranged to execute as processes on the processor using a common operating system kernel” as in the present claimed invention. The use of a common OS kernel architecture is not at all contemplated by Choi because Choi provides for full integration of the real-time kernel within the general purpose operating system. This architecture is fundamentally different from and not equivalent to the present claimed system as described above. Consequently, withdrawal of the rejection of claim 2 is respectfully requested.

In view of the above remarks, Applicant respectfully submits that Choi fails to provide any 35 USC 112 compliant enabling disclosure that anticipate the present invention as claimed in claims 1 – 6 and 8. Consequently, withdrawal of the rejection of claims 1 – 6 and 8 is respectfully requested.

**Rejection of Claim 7 under 35 USC 103(a)****over Choi (U.S. Patent No. 6,275,741) in view of Nafis (WO94/24631)**

Reversal of the rejection of claim 7 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,275,741 issued to Choi in view of International Patent Application Publication

No. WO94/24631 applied for by Nafis is respectfully requested because the rejection makes crucial errors in interpreting the cited reference. The rejection erroneously states that claim 7 is unpatentable over Choi in view of Nafis.

In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the examiner to establish a factual basis to support the legal conclusion of obviousness. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596, 1598 (Fed.Cir. 1988). In so doing, the Examiner is expected to make the factual determinations set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 17, 148 USPQ 459, 467 (CCPA 1966), and to provide a reason why one having ordinary skill in the pertinent art would have been led to modify the prior art or to combine prior art references to arrive at the claimed invention. Such reason must stem from some teaching, suggestion, or implication in the prior art as a whole or knowledge generally available to one having ordinary skill in the art. *Uniroyal, Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 1051, 5 USPQ2d 1434, 1438 (Fed.Cir. 1988), *cert. denied*, 488 U.S. 825 (1988); *Ashland Oil Inc. v. Delta Resins & Refractories, Inc.*, 776 F.2d 28, 293, 227 USPQ 657, 664 (Fed.Cir. 1985), *cert. denied*, 475 U.S. 1017 (1986); *ACS Hosp. Sys., Inc. v. Montefiore Hosp.*, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed.Cir. 1984). These showings by the Examiner are an essential part of complying with the burden of presenting a *prima facie* case of obviousness. *In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed.Cir. 1992).

Claim 7 is dependent on claim 1 and is considered patentable for the reasons presented above with respect to claim 1. Claim 7 is also considered patentable because Nafis (with Choi) fail to disclose or suggest that the “real-time data is physiological data” as in the present

claimed invention. Specifically, Nafis (with Choi) fail to disclose or suggest “a real-time kernel, controlling execution of a process for displaying images representing real-time data on the display device concurrently with the display of the non-real-time data, wherein the general purpose operating system and the real-time kernel are both arranged to execute as processes on the processor using a common operating system kernel” as recited in the present claimed invention. Nafis is merely concerned with display real-time data and non-real time data in a healthcare environment. However, there is nothing in Nafis alone or in combination with Choi that discloses the “common operating system kernel” controlling execution of the “real-time kernel” and the “general purpose operating system”.

Additionally, Applicant respectfully submits that there is no reason or motivation to combine the injection molding machine control system of Choi with the graphic and live video surgery system of Nafis. Choi seeks to maximize efficiency of injection molding machines using a real-time kernel. This is fundamentally different from Nafis which displays real-time video data of a patient during surgery with a pre-determined image thereby providing the physician a different view of a similar bodily structure. Choi is not at all concerned with displaying image of any data source beyond the mere mention that the Choi system includes a display device for general display of data. Additionally, any combination of these systems would result in an inoperable device. These system are intended for use in entirely different areas each requiring attention to specific details that the other is lacking. For example, a computer system to control manufacture of plastic as in Choi must take into account different variables and protocols than a video surgery system as described by Nafis. Therefore, it is respectfully submitted that the combination of these systems is improper. Moreover, any combination that may be operable still would neither disclose or suggest the present claimed

invention for the reasons presented above. Consequently, withdrawal of the rejection of claim 7 is respectfully requested.

In view of the above remarks, Applicant respectfully submits that Nafis alone or in combination with Choi, fails to make the present claimed invention unpatentable. Consequently, withdrawal of the rejection of claim 7 is respectfully requested.

### **VIII CONCLUSION**

Choi alone or in combination with Nafis fail to disclose or suggest "a critical care workstation including a processor, coupled to the display device" that executes "a general purpose operating system, controlling execution of a selected one of a plurality of non-real-time application programs for displaying images representing non-real-time data on the display device" and "a real-time kernel, controlling execution of a process for displaying images representing real-time data on the display device concurrently with the display of the non-real-time data, wherein the general purpose operating system and the real-time kernel are both arranged to execute as processes on the processor using a common operating system kernel" as recited in the present claimed invention. Accordingly it is respectfully submitted that the rejection of Claims 1-8 should be reversed.

Respectfully submitted,

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**APPENDIX I - APPEALED CLAIMS**

1. (Previously Presented) A critical care workstation, comprising:
  - a display device;
  - a processor, coupled to the display device, executing:
    - a general purpose operating system, controlling execution of a selected one of a plurality of non-real-time application programs for displaying images representing non-real-time data on the display device; and
    - a real-time kernel, controlling execution of a process for displaying images representing real-time data on the display device concurrently with the display of the non-real-time data,
  - wherein the general purpose operating system and the real-time kernel are both arranged to execute as processes on the processor using a common operating system kernel; and
  - circuitry, responsive to user input, for selecting the non-real-time display program from among a plurality of available non-real-time display programs.
2. (Previously Presented) The workstation of claim 1 wherein the general purpose operating system executes concurrent with and independent from the real-time kernel.
3. (Previously Presented) The workstation of claim 1 further comprising a storage device, coupled to the processor, wherein the plurality of non-real-time application programs are stored on the storage device and the general purpose operating system selects one of the stored plurality of non-real-time application programs in response to the user input.
4. (Original) The workstation of claim 3 wherein the storage device stores code and data representing the non-real-time application program and the processor retrieves the stored code and data representing the selected non-real-time application and controls the execution of the retrieved code and data.

5. (Original) The workstation of claim 1 further comprising a connection to a network comprising a server capable of storing the plurality of non-real-time application programs and the general purpose operating system selects one of the stored plurality of non-real-time application programs in response to the user input.

6. (Original) The workstation of claim 5 wherein the server stores code and data representing the non-real-time application program and the processor retrieves the stored code and data representing the selected non-real-time application and controls the execution of the retrieved code and data.

7. (Previously Presented) The workstation of claim 1, wherein the real-time data is physiological data.

8. (Previously Presented) The workstation of claim 1, wherein a displayed image concurrently displays both non-real time and real time data.

**APPENDIX II - EVIDENCE**

Applicant does not rely on any additional evidence other than the arguments submitted hereinabove.

**APPENDIX III - RELATED PROCEEDINGS**

Applicant respectfully submits that there are no proceedings related to this appeal in which any decisions were rendered.

**APPENDIX IV - LIST OF REFERENCES**

<b><u>U.S. Patent /</u></b>	<b><u>Issued/ Publication</u></b>	<b><u>102(e) Date</u></b>	<b><u>Inventors</u></b>
<b><u>Publication . No.</u></b>	<b><u>Date</u></b>		
6,275,741	August 14, 2001		Choi
<b><u>Non-US Patent /</u></b>	<b><u>Issued/ Publication</u></b>		<b><u>Inventors</u></b>
<b><u>Publication . No.</u></b>	<b><u>Date</u></b>		
WO/9424631	Oct. 27, 1994		Nafis

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